

Editorial

The Politics of Agribusiness and the Business of Sustainability

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Abstract: The sustainability and the prospects of contemporary agribusiness are discussed taking into account trends, controversies, ideologies, practices and pending demands. The growing hegemony of agribusiness in the world today is analyzed making use of a conceptual framework of agro-neoliberalism that embraces three main areas of interaction, namely, renewed public–private alliances, novel techno-economic strategies that intensify socio-ecological exploitation and the containment of critical reactions. The critical importance of export-led agribusiness for the Brazilian economy provides a paradigmatic opportunity to apply this conceptual framework and investigate the foundations and geographical specificities of agro-neoliberalism. The article also discusses recent politico-economic adjustments and early signs of the exhaustion of Brazilian agro-neoliberalism, despite its undisputed hegemony. Neoliberal agricultural policies in Brazil have enabled the mobilization of agricultural resources, not for the purpose of domestic food security, but primarily for capital accumulation and the reinforcement of long-term social and economic trends that, ultimately, undermine prospects for sustained agricultural growth and broader sustainable development.

Keywords: agro-neoliberalism; neoliberalism; sustainable development; agri-food; agricultural frontiers; Mato Grosso; Brazil; agro-industry; agroecology; political-economy

1. Agribusiness and the Sustainability Challenge

Agriculture, similar to many other activities in the contemporary world, has been substantially transformed by the application of intensification technologies, the globalization of agri-food markets and the financialization of production and consumption. As denounced by Vandana Shiva, we “are facing a deep and growing crisis rooted in how we produce, process, and distribute our food . . . An inefficient, wasteful, and nonsustainable model of food production is pushing the planet, its ecosystems, and its diverse species to the brink of destruction”. The author further added that “food, whose primary purpose is to provide nourishment and health, is today the single biggest health problem in the world: nearly one billion people suffer from hunger and malnutrition, two billion suffer from diseases like obesity and diabetes, and countless other suffer from diseases, including cancer, caused by the poisons in our food” [1] (p. ix). The image of an intense, globalized and money-making agriculture is commonly captured in everyday language by the expression agribusiness. While agribusiness has no rigid or consensual definitions, it is directly associated with hyper-modern farming and the insertion into the cross-scale features of capitalist agriculture. The origin of the term agribusiness is historically attributed to Davis and Goldberg, who defined agribusiness (based on previous references made by other authors to agro-industry and commercial agriculture) as multiple operations involving the manufacture and distribution of farm supplies and the storage, processing and distribution of agricultural commodities [2]. Agribusiness became ever since associated with a large agro-industrial complex under concentrated forms of corporate ownership and management. In some countries, as in the case of Brazil, agribusiness encompasses large- and small-scale commercial agricultural production,

as well as agro-industry and associated services. Seen from a critical perspective, agribusiness appears to be more than just a commercial agriculture regime practiced in high-tech farms, but rather constitutes a particular approach to the management of rural properties, the mobilization of resources and the financing and commercialization of production.

The fluid meaning of agribusiness, which is exceptionally broad and contains many activities directly or indirectly associated with agriculture, helps to reinforce the sense that the sector plays an increasingly important role in most national economies and global commercial exchanges. Related to the difficulty to accurately define agribusiness, sustainability and sustainable development are other highly contested concepts that encapsulate a spectrum of viewpoints, interests and experiences. Progress towards higher levels of agricultural sustainability and better environmental governance are directly impacted by the controversial nature of sustainable development (which underpins the Sustainable Development Goals approved in 2015) [3] and by the acceptability of sustainability notions [4]. In that context, the ambivalent connotation of agribusiness is not accidental, but the slippery boundaries of the sector make it convenient to be used by politicians and economic groups to justify a particular course of action. For instance, the powerful agri-food sector of the United States claims to be, at least rhetorically, engaged with the sustainability agenda, but the practice demonstrates that this commitment is superficial and aimed to “green” their established business strategies [5]. The agribusiness sector is conventionally associated with capital-intensive farming and the extensive integration of agricultural production and food chains. Those processes are often described as clear evidence of technological efficiency, economic success and consumer benefit arising from large-scale production, extended logistic systems and international trade transactions. However, the negative environmental impacts and growing socio-political tensions derived from the expansion of agribusiness to many new corners of the planet are systematically played down by those who control its symbolic and material dimensions. That includes the disruption of traditional food, utilization of mechanized deforestation and fast concentration of landed property. Consequently, there is a pending demand for interdisciplinary critical analyses able to explain the false claims of the sector amid a sustained mystification of the contribution of agribusiness to local, national and international economies. Furthermore, the controversial features of agribusiness are also relevant to help to understand the challenging risks and responsibilities of agriculture in the contemporary, increasingly urbanized world.

This Special Issue of *Sustainability* was an invitation for academics and practitioners to collectively engage in a critical discussion of the results and problems associated with present day agriculture and its powerful transformation into agribusiness. The articles deal, in different ways and according to specific approaches, with the complexity of contemporary agribusiness and the contradictions that prevent higher levels of justice and sustainability. Building a sustainable food system is certainly a complex process that inescapably involves a diversity of actors with conflicting interests [6]. The relation between economic development, agricultural production and environmental change represents one of the most challenging questions nowadays. The response is not trivial, but requires critical and creative thinking and a move away from simplistic solutions and narrow strategies. The challenge is, above all, political, as it necessarily involves decisions about resources, technologies and opportunities. The debate on agribusiness is significant, not only because of fierce disputes over land ownership, resource use and commodity chains, but also because it reveals a great deal about wider socioeconomic trends and socioecological security. As mentioned above, the intensification of food production and commercialization is associated with low quality food, environmental disruption and food insecurity. Intensive agri-food production is likewise related with higher levels of obesity and malnutrition, although the connection is not simple given that other behavioral factors, lifestyles, marketing and consumer choices also intervene [7]. Most government interventions seem to reproduce a productivist thinking about development, social demands and the environment. Public policies are mostly constrained by the influence of corporations, supermarkets and investment funds (involving, for instance, in land grabbing operations).

This particular article provides a broad overview of the international debate on agribusiness and agro-neoliberal policies. The main qualitative characteristics of agro-neoliberalism will be discussed and then politico-economic repercussions in the center of Brazil (in the State of Mato Grosso, at the transition between savannah (*cerrado*) and forested ecosystems in the southern tracts of the Amazon region) will be analyzed, making use of a dedicated conceptual framework. The critical importance of export-led agribusiness in Brazil provides a paradigmatic opportunity to apply this conceptual framework and investigate the specificities of agro-neoliberalism, especially because the country is one of key players in global agri-food markets and is poised to become the main agribusiness producer in the world in the next few years. The article offers a critical assessment of the implementation of neoliberal policies and the evolution of political and ideological mechanisms alongside forces of geographical change. It specifically discusses recent politico-economic adjustments that have followed neoliberalizing pressures and also early signs of weakness in Brazilian agro-neoliberalism, despite its undisputed hegemony. However, it is important to point out that agro-neoliberalism is another slippery concept with unclear boundaries and multiple continuities with previous phases of capitalist agriculture; in addition, not all economic processes and institutional changes to agriculture that have occurred in recent years can be associated with neoliberal reforms. Neoliberalism today is certainly widespread and very influential, but it is not everywhere all the time; other economic paradigms continue to function in the world today, even in impure forms (such as colonialism, statism, Stalinist-industrialization and privatization). However, by ignoring these nuances, many authors have exaggerated the scale and distinctiveness of neoliberalism, overstating the importance of some individual features while disregarding the wider economic history and geography of agrarian capitalism.

2. The Politics of Agriculture as Agribusiness

The production, distribution and consumption of food are subjects for some of the most controversial and, perhaps, poorly understood debates in the world today. In the words of Patel, the “food system is a battlefield, though few realize quite how many casualties there have been” [8] (p. 23). The system consists of processes unfolding at different scales, with profound historical and geographical significance, as they involve territorialized transformations that interconnect disputes and collaborations between social groups across different localities, countries and regions. One could say, with no exaggeration, that the problems of agri-food vividly capture the maelstrom of present day globalized economies and their increasingly alienated societies (considering not only political, marketplace and cultural alienation, but also alienation in the strict politico-economic sense of a fundamental separation from the control of production and consumption). If we think carefully about supermarket shelves and TV advertisements, the nutritional and cultural dimensions of agriculture and food often seem to be overlooked today, as the sector is increasingly dominated by industrialized goods, standardized diets and intercontinental transactions. A significant proportion of the food consumed today, particularly in the Global South, comes from obscure and often unreliable sources, which are more influenced by market pressures and shareholder expectations than by health requirements, farmer demands or nutritional and environmental concerns. As Friedmann points out, “agriculture and food have all along invisibly underpinned relations of property and power in the world system” [9] (p. 124). Even the most remote corners of the planet are now exposed to the advance of Westernized lifestyles, as is the case in the Upper Negro River, on the border between Brazil and Colombia, visited by the author in 2016, where local shops are becoming mere distribution points for frozen chicken and ready-to-cook food packed thousands of miles away from the Amazon.

An obvious consequence of rapidly changing production and consumption patterns is that any investigation into agri-food issues needs to consider the material, subjective and discursive dimensions of market globalization and the multiple contradictions, as well as achievements, of contemporary capitalist agriculture. A central question of this debate is the fact that the technological and managerial practices of commercial agriculture are largely determined by the activity of mega-corporations selling

agro-chemical inputs (e.g., pesticides, fertilizers, herbicides, etc.), machinery and equipment, and by the complementary activity of agri-food companies controlling the purchase and distribution of goods. As observed by Clapp and Fuchs, large corporations and their commercial allies hold different and interrelated forms of power, including instrumental power (the ability to lobby governments and influence social actors), structural power (influence over the public agenda and rule setting) and discursive power (shaping the public debate and the choices presented to wider society) [10]. The power of agri-food corporations, including lobbying and pressure on governments, is never far away from the household or the dinner table. While agro-industries pursue high field productivity, and large supermarkets operate extensive delivery networks, the great majority of the population is dangerously reliant on a small number of supply chains and the narrow menu of fast-food restaurants. The colorful shelves of most shops seem to offer a range of food options and a variety of choices, but are in fact dominated by a small list of plant species and animal breeds. Mass selling of convenient, ready-to-eat options is achieved at the expense of food's nutritional value, traceability and contribution to local economies. The influence of corporate interests is particularly significant among urban populations and on the periphery of large cities, where there is a growing tendency to buy cheap sugary food or consume frozen microwaveable meals. The perverse appeals of convenience and standardization have seriously affected not only the daily diets and health of both younger and older generations, but also the power of farmers to decide what to produce.

Therefore, the aggressive modernization and industrialization of agri-food can be described as a disturbing movement from food-as-nutrition and agriculture-as-social-integration to a situation in which agri-food operations are carried out primarily to circulate and accumulate capital. In other words, the role of agriculture as a source of nutrition and livelihood is being increasingly supplanted by the imperatives of money and profit, which is happening in the wider context of a globalized market-based society in which everything is prey to commodification. This is the first main contention of this article: notwithstanding many other biophysical, cultural and circumstantial problems, the basic disconnection between food and nutrition, together with the firmly established nexus between food and money-making, are the twin causes of the widespread agri-food crisis faced by governments and society. The ideological and practical reduction of food to the realm of commodities, exploitation and profit also represents a decisive barrier to the resolution of nutritional and environmental problems. In synthetic terms, this has constituted a gradual shift, particularly since World War II, from *agriculture-cum-food* to *agriculture-cum-agribusiness*. The essential feature of agriculture-cum-agribusiness is the deliberate incorporation of agri-food processes into mechanisms of profit maximization, social exclusion (via privatization of the commons) and socio-ecological exploitation and alienation.

The word "agribusiness" was only coined in the 1950s (see above), but its structural bases, that is, the brutal transformation of agriculture due to the advance of capitalist relations of production and reproduction, were already evident in the Global North at the turn of the 20th century. The "business of the agro" became increasingly less focused on sustenance and nourishment and more about short-term financial gains and the legitimization of hegemonic agri-food systems. Under neoliberalizing pressures, from the final three decades of the last century onwards, such totalitarian features were magnified by the systematic adoption of market-based responses to social and ecological problems created by capitalist expansion itself (for instance, in the case of policies and market mechanisms aiming to internalize the costs of environmental degradation and health risks). What happened to most of agriculture (i.e., its conversion into agribusiness) has many elements of what Polanyi describes as markets—which are essentially power relations—becoming disembedded from social and ecological grids and, echoing Marx's analysis of contingent social relations, the creation of fictitious commodities, as in the case of land, money and labor [11]. Agriculture-cum-agribusiness has increasingly become detached from existing socio-cultural and socio-ecological relations and been reshaped according to the abstract logic of global markets and the elusive measure of money. These transformations have occurred through complex interactions with wider socio-economic and political phenomena mediated and legitimized, primarily, by the apparatus of the state.

There are specific historical and geographical reasons for this widening gap between agri-food and basic socio-ecological goals. For many centuries, going back to ancient farming and Babylonian irrigation, agriculture was a source of staple food and raw materials, with only a fraction of production commercialized or exchanged in (almost exclusively) local markets. Although some pre-capitalist societies did achieve sizeable food surpluses, this happened over long periods of time and vast territories (as in the case of Aztec, Roman, Chinese, Indian and Islamic agri-food systems). More importantly, pre-capitalist agriculture was not “premised on a state- and market-enforced productivity model”, but “with the transition to capitalism, the new property relations propelled a process of dispossession and differentiation that enabled rising labor productivity in agriculture and rising food surplus” [12] (p. 242). In this process, the life sustaining and socio-cultural properties of agriculture were progressively disregarded in favor of commodified versions of food. Capitalist agriculture changed not only in terms of the scale of production, but its fundamental qualities were also transformed as food was transmuted into commodity. This is a highly politicized phenomenon, with both local and geopolitical repercussions. For instance, the need to secure cheap, commodified food for a growing layer of non-agricultural laborers was a key feature of the early expansion of capitalism and was pivotal to the rise of the Dutch and British world hegemonies in previous centuries, as well as North American world supremacy later in the 20th century.

It should come as no surprise that the chief consequence of commodification is the reinforcement of malnourishment and socio-ecological degradation due to combined distortions in both the production and consumption sides of agri-food systems. Shameful levels of food waste and scandalous distribution losses only aggravate the problem and betray the narrow rationality of mainstream agri-food. Every night, around 800 million people in the world still go to bed hungry and almost a billion suffer from extreme poverty, according to the highly regarded report *The State of Food and Agriculture* [13]. Ironically, and sadly, most of these people live in rural areas and depend on agriculture-related jobs for most or all of their income. Nonetheless, the public debate on the causes of hunger and poverty is currently dominated by simplistic claims and technocratic—largely neo-Malthusian and neo-Positivist (i.e., basically, an argument of the equivalence between physical and social phenomena)—calls for mere increases in production and productivity. The official discourse of agricultural development and food security adopted by national governments and multilateral agencies emphasizes that the aggregate number of people suffering from hunger (vaguely defined as “chronic undernourishment”) has declined in recent decades due to technological and managerial improvements. This claim is apparently supported, at least in part, by the statistical evidence. The year 2015 marked the end of the monitoring period for the two internationally agreed targets for hunger reduction included in the famous Millennium Development Goals (MDGs). The number of people in developing countries suffering from hunger was to be halved compared with the base years of 1990–1992 (from 23.2% to 11.6%). The recorded percentage during 2014–2016 was 12.9%, implying that the goal has almost been met. However, if we analyze the results in terms of undernourished people, the figures are rather different: since 1990–1992, the number of undernourished people in developing regions has fallen from 991 million to 790.7 million, but the goal was 495 million (half of 991 million), meaning that the target has not in fact been met [13] (pp. 8–12).

Although any reduction in hunger should be celebrated, there are serious concerns about the reliability and significance of such statistics and, more importantly, the unwillingness to question mainstream agri-food operations. Estimates of hunger are highly problematic due to the difficulty of accurately defining the term, debatable thresholds and inconsistent methodologies, and we all know that national statistics are fraught with imprecision. Governments and multilateral agencies are constantly moving the goalposts with redefinitions of key concepts, data revisions and adjustable targets [14]. On the whole, while the MDGs basically concentrated on eradicating extreme poverty and eliminating hunger, a major food crisis continues to affect both those with and without easily available food. The difficult conditions of those suffering from hunger and malnutrition remain concealed behind aggregate data and the persuasive discourse of agriculture modernization advanced

by agribusiness corporations. Beyond cold statistics, the crux of the matter is really whether agriculture should serve the desires of a small minority of the population and merely support economic growth, or whether the industry should be concerned with social justice and the promotion of socio-ecological sustainability. In practical terms, this is not just about changing global and national trends, but also about fostering alternative solutions and creative strategies at the local and individual levels. In any case, it is becoming clear that business-as-usual (or agribusiness-as-usual, to make an unavoidable pun) is a risky and hopeless option that is not serving the needs and expectations of farmers, consumers and wider society.

This is because mainstream agri-food approaches remain firmly within the established paradigm of market solutions and mitigatory, end-of-the-pipe measures. For example, the aforementioned report by the FAO and partners makes clear that investment in agriculture remains the single most effective way to provide opportunities to generate income and improve nutrition, especially for women and young people in rural areas, but very little is said about the underlying causes of rural deprivation (such as the unequal distribution of land or public policy support). Ultimately, documents such as these can obscure the prevailing forces of dispossession and displacement promoted by market globalization and enacted by national governments and their allies. The influence of state policies, including environmental regulation, produces results that can either benefit wider society or, in other cases, concentrate gains in the hands of corporations or powerful landowners (for instance, in the United Kingdom, the payment of farm subsidies to billionaire Saudi princes, dukes and even to Queen Elizabeth II, who received £557,706.52 in 2015 [15]). Likewise, the prominence of global commodity markets and top-down rural development masks the agro-industrial and financial priorities that pervade the production, distribution and consumption of food. An emblematic example of this controversy can be found in the World Bank's attempts to improve the productivity of small farmers to integrate them into commercial chains controlled by powerful, normally foreign, players. It is also the case that, despite any progress, the vast majority of those suffering from hunger live in the Global South, where more than six decades of international development promises have not resolved the matter.

It is highly relevant that an expanding number of critical studies have demonstrated that conventional agri-food systems and neoliberal agribusiness activities no longer produce food that is safe and healthy, and this cannot be sustained in the long-term. For McMichael, liberalization and privatization are combined "to accelerate food circulation globally and restructure food production and retailing along corporate lines" [16] (p. 64). It is also worth remembering the observation of Derrida that "never, never in history, has the horizon of the thing whose survival is being celebrated (namely, all the old models of the capitalist and liberal world) been as dark, threatening, and threatened" [17] (p. 52). The key question therefore posed for society, academics, politicians and farmers is how to reject the configuration and repercussions of agriculture-cum-agribusiness in favor of diversified, largely localized, agricultural practices owned by producers and consumers. Those aims can only be achieved through the simultaneous construction of a new socio-economic order and novel patterns of production, consumption and ecological conservation. This agenda of radical change vividly and inescapably connects the local with the national and the international. The transition to a more sustainable agriculture and fairer agro-industry will be the result of social mobilization at different levels, from small-scale agriculture systems to the profound transformation of national and global markets. Moreover, and contrary to the claims of many academics and activists, such changes must necessarily involve more stringent economic, health and environmental regulation and better informed consumers, but these alone will not be sufficient. The transformation of food and agriculture must necessarily contribute to, and follow, wider politico-economic, ethical and technological reconstructions.

Taking into account these challenges and their multi-scale ramifications—from household to global scale, and connecting past, present and future—the present discussion is located in the tradition of critical social theory, and aims to contribute to the search for radical alternatives in an attempt to reinstate food as food, farmer as food producer, and markets as allocation tools. It is also part

of the endeavor to remove the distortions and falsifications of the hegemonic agri-food system that feeds contemporary, market-based society. It is increasingly evident, at least among critical academic and activist circles, that the technologies inherited from the Green Revolution (and its more recent version, the “Gene Revolution”, associated with genetic engineering and genetically modified organism (GMOs), and closely related to digital technologies and precision agriculture) were limited in terms of their impact in reducing food supply and distribution problems; the main challenge continues to be a search for politico-ecologically viable and socio-culturally acceptable options. There are currently more hard questions than convincing answers: How do we achieve transformations in the food system to promote a holistic and sustainable approach to food production based on local, place-based food interactions? Why do we have a situation where millions of people are hungry while a billion are overweight? Why is agriculture acknowledged as a major contributor to climate change and ecosystem loss, while millions of farmers are evicted from the countryside? How did we get here? Who are the winners, and who are the losers? What are the trajectories of the current model of production, distribution and consumption, and what and where are the alternatives?

If there are no easy answers or pre-determined routes to follow—on the contrary, the agenda of change is wide open—it should at least be asserted that these are all questions that animate the discussion and provokes in-depth reflection throughout the articles of this Special Issue. The central element of this debate is necessarily political and should operate at different levels: from the farm and community level to alliances with informed, conscious consumers, other economic sectors and changes in public policies and environmental standards. Responses to the dominance of agriculture-cum-agribusiness will fail to achieve long-term results unless local and global food systems undergo major, fundamental transformations. It is really fascinating to realize that these multi-scale changes will, more than anything else, be felt at the local scale where people work, live and dine (obviously under the influence of wider national and global pressures). Rather than being a pre-structured phenomenon, rural localities are “reproduced, and the social relations therein recomposed, by virtue of their contemporary magnetism for relocation due to the wider discontinuities of capital activity” [18] (p. 15). Consequently, local and interpersonal interactions are as important as more general, structural dimensions.

The next section outlines the main characteristics of agro-neoliberalism and introduces a specific conceptual framework that embraces three main areas of interaction: renewed public–private alliances, novel techno-economic strategies that intensify socio-ecological exploitation, and the containment of critical reactions. This framework will later inform the analysis of its politico-economic repercussions in Brazil and in Mato Grosso. The crucial role played by agribusiness exports reveals the commonalities and specificities of Brazilian agro-neoliberalism. The specialized literature has repeatedly demonstrated that the neoliberalization of agribusiness encompasses more than just trade liberalization and public policy reforms, but actually includes novel forms of public–private association, technological innovation and ideological constructs. At the same time, it is very important to realize that agro-neoliberalism (as much as neoliberalism in general) is a highly contingent process that simultaneously brings together global, collective trends and place specific situations. For instance, remarkable differences have been observed around the world when considering the performance of transition countries recently exposed to market forces and liberalizing economic reforms [19]. In the current text, recent politico-economic adjustments that have followed neoliberalizing pressures are particularly discussed as well as early signs of weakness in Brazilian agro-neoliberalism, despite its undisputed hegemony. However, it is important to emphasize that agro-neoliberalism, just like sustainability, is a slippery concept with unclear boundaries and multiple continuities with previous phases of capitalist agriculture; in addition, not all economic processes and institutional changes to agriculture that have occurred in recent years can be associated with neoliberal reforms. Those controversies are considered next.

3. The Three Main Dimensions of Agro-Neoliberal Hegemony

There is a growing international literature on neoliberalism and neoliberalization, which needs to be connected with the concrete historical and geographical experiences of countries, places and production units. Neoliberalism is, in basic terms, a variegated, geographically uneven and path-dependent process that represents a “historically specific, unevenly developed, hybrid, patterned tendency of market-disciplinary regulatory restructuring” [20] (p. 330). In addition, it cannot be reified or described as an actor with autonomous goals, but is obviously the result of government decisions, policies and actions. Neoliberalism is not only an economic and social phenomenon, but also constitutes an assertive development strategy aimed at displacing some of the prevailing politico-economic mechanisms adopted before the 1970s (in the context of post-war reconstruction and nation building in the Global South). It is about a new global rationality in which people are no longer only governed, but increasingly self-governed, that is, through new forms of collective and personal discipline according to a business-centered doctrine [21]. Neoliberalism has also entailed the extension of market-based institutions into previously insulated realms of politico-economic life (created or protected by Keynesian and nationalistic economic policies). The fluidity of neoliberalization includes a specific set of ideological tenets and policies aimed at renovating capitalism through increased market liberties, which, sooner or later, intensify mechanisms of exploitation and alienation. For instance, neoliberalism has always been anchored in its control of some of the last frontiers of modernity, such as new oil reserves, the de-ruralization of China, cheap food and debt-driven trade liberalization. Considering the dynamic and uneven basis of neoliberalism, it could be argued that most of the existing academic and grey literature exacerbates the division between state and market strategies, which is a false dichotomy often employed to rationalize neoliberalizing reforms (i.e., the market as the realm of efficiency and rationality, and the state as the realm of inefficiency and paternalism). Practical experience around the world shows that even governments with distinct neoliberal façades continue to make use of direct interventions in market forces, such as fiscal or non-tariff restrictions. This is why Busch affirms that neoliberalism is mythical, as the concept is ultimately based on myths and ideological constructs about state and market, even though its power and disruptive impacts are real [22].

As discussed above, the complex role of agribusiness in industrial, and increasingly post-industrial, economies has been a favorite research topic for many of those studying the patterns and perspectives of contemporary capitalist societies and western-based modernity. The high levels of financialization of agri-food systems, the deep causes of agrarian disputes, the class identity of different groups of farmers and the various types of rural property, among other related issues, continue to be matters of great academic and policy interest. More importantly, the modernization and intensification of agriculture are key factors in present-day capitalism and, in particular, the transition to post-Fordist modes of production under the sphere of influence of neoliberalism [23]. The agri-food sector today increasingly bears the imprint of neoliberalism, not as a rigidly defined plan, but rather as a multifaceted experience aimed at the reconfiguration of socio-ecological processes and socio-economic institutions. Production is obviously organized by farmers, commercial allies and policy makers according to several internal and external constraints, motives and opportunities, but at the same time the neoliberalization of agriculture has led to (partial and circumstantial) adjustments under the influence of market-friendly policies and globalization pressures. The various techno-economic innovations introduced in commercial agriculture—including gene and land grabs, biotechnological techniques, dispossession of common land, etc.—are all approaches that combine old and new features of the wider capitalist economy. One of the arresting features of this debate is that, although agricultural activities have increased considerably (at least in absolute terms), various problems still affect food supply reliability and undermine the basic demands of rural and urban populations. The substantial questions associated with agricultural neoliberalization include lack of access to nutritious food, the impacts of agrochemicals on communities and ecosystems, and the enormous concentration of power held by mega-supermarkets and mega-corporations that influence food production, distribution and consumption.

If neoliberalism—considered as both the contemporary period of capitalism [12] and as a complex ideology [24]—comprises beliefs and practices centered on market efficiency as the most efficient mechanism for regulating economic relations and renovating politico-economic strategies [25], its influence on agriculture is an idiosyncratic process that mingles free-market pressures and flexibilization approaches with renewed mechanisms of protectionism, trade barriers and labor movement restrictions [26]. Since the end of the 1980s, at least, the agenda of international development has tried to reconcile agricultural economic growth and the reduction of rural poverty with incentives and institutional adjustments aimed at increasing productivity and at promoting free trade. It meant the replacement or the adjustment of the institutional framework and production policies introduced in the post-World War II context by developmentalist or Keynesian administrations. The creation of the World Trade Organization (WTO) in 1995 was the most eloquent attempt to liberalize global markets and reduce the importance of price controls and stock formation. In 1996, the final declaration of the World Food Summit in Rome affirmed that the pursuit of food trade policies would “encourage our producers and consumers to utilize available resources in an economically sound and sustainable manner”. This triggered measures ranging from adjustments in small-scale farming and local economies to the intensification of agro-industrial production, the widespread financialization of agriculture (including agricultural derivatives) and the subjugation of public policies to private pressures [9]. As a result, contemporary agri-food systems are increasingly focused on short-term gains and the legitimization of political hegemonies at the expense of health and nourishment.

Neoliberalized agriculture is also an important element and a central component of a class-based project to restore the basis of exploitation and profitability that is guided by flexible capital accumulation, market globalization and renewed forms of public–private interaction (for instance, in the Brazilian case, the main agribusiness production areas in Mato Grosso also have a growing number of roads transferred to the private sector, as well as the private construction and management of hydropower and river navigation schemes; this process involves both Brazilian and international private companies). Agri-food has certainly become one of the most globalized sectors in the neoliberalized economy [27], and in this process the interests of farmers and customers have increasingly been subordinated to those of large corporations and their commercial allies, who have developed multiple strategies to benefit from the globalization of markets and to lessen regulatory restrictions. As observed by McMichael, liberalization and privatization have combined “to accelerate food circulation globally and restructure food production and retailing along corporate lines” [16] (p. 64). Nonetheless, most of the critical literature has so far focused on neoliberal agriculture’s more readily identifiable features, such as financial flows and the intensification of trade, but left rather implicit the foundations and geographical specificities of what can be called “agro-neoliberalism”. For instance, Wolf and Bonanno offer a very interesting set of examples of results, contradictions and reactions to neoliberalism, but largely fail to conceptualize the term itself beyond market solutions and private sector protagonism [28]. In an otherwise interesting text, Hollander focused on “agriculture trade liberalization”, while agro-neoliberalism goes beyond commerce and includes politico-ideological dynamics, influencing economic production and social reproduction “all the way down” [29]. Goodman and Watts appropriately recommended that rural questions should be situated within the wider canvas of social theory, emphasizing the territoriality of the agro-food complex and the simultaneous territorialization and deterritorialization under neoliberalizing influences [30].

Overall, agro-neoliberalism is a complex, context-specific phenomenon which aims to remove the constraints of Keynesian and Fordist approaches, create new political and economic prospects and reinforce class-based hegemony. However, neoliberalized agri-food is more than just a simple sectoral manifestation of broader neoliberal calls for market-based solutions to the problems created or neglected by the state apparatus; it is also qualitatively distinct from other areas under the influence of neoliberal pressures, particularly because of a tailored combination of simultaneous pleas for free-market and sustained protectionism [31]. In particular, the neoliberalization of agri-food largely follows free-market fetishism while perpetuating or even amplifying calls for state interventions aimed,

for instance, at mitigating price oscillations and preventing over-production. Agro-neoliberalism is essentially the result of a contingent convergence of production and commercialization strategies organized according to an ideological construct that privileges market-based policies and the intensification of capital circulation without removing the intervention and mediation of the state apparatus. In addition, agro-neoliberalism incorporates complex historico-geographical processes that are undoubtedly connected with other sectors and public policies, such as environmental governance (as in the case of the management of resources and biodiversity), public services (e.g., provision and supervision of transport and health) and commercial legislation (e.g., labelling, corporate liability, customer rights).

Departing from this critical academic literature, and to facilitate the analysis of the complex relationships between agriculture and neoliberalism, it is possible to identify three main dimensions, or key features, of the advance of agro-neoliberalism around the world (which obviously do not cancel local, context specific circumstances), as follows:

- (1) **Renewed public-private alliances:** The central advocate of agro-neoliberalism continues to be the national state, but often through partnerships with the private sector and multilateral organizations, such as the World Trade Organization and regional blocks (e.g., Mercosul, European Union, the North American Free Trade Agreement (NAFTA), etc.). The neoliberalized state strives both to address the insufficiencies of developmentalist policies and to forge a more market-friendly institutions [32]. This means that the interventionist policies of the post-World War II years (such as the European Common Agricultural Policy (CAP)) were partially substituted by a multi-level structure of food and agriculture governance that, crucially, included emerging associations between public and private agents. The state has remained central in the deployment and transcendence of agro-neoliberalism, and needs to be understood not as an isolated entity above society and socionature, but as an inherent locus of power located in social and socio-ecological interactions and class-based compromises [33]. Because of this, public policies and regulatory approaches are subject to the powerful influence of the international corporate sector, which systematically attempts to capture new markets and organize production and commercialization. On the one hand, the apparatus of the state remains in control of market regulation, knowledge production, organization of labor, trade agreements and monetary policies, protection against market and climatic risks, the promotion of food-security, etc. On the other hand, agro-neoliberalism grants the private sector, particularly corporations, influence that extends beyond their market share, through complex networks and careful discourses.
- (2) **Novel techno-economic strategies that intensify socio-ecological exploitation:** Agro-neoliberalism has benefited from capital-intense technologies and science-based solutions (which help to reinforce the position of the best-equipped and best-trained farmers), such as genetic engineering, computer systems and sophisticated transport, and information and communication technologies. Moreover, agro-neoliberalism is not only an economic or technological process, but also a politico-ecological project that has deepened and intensified the multiple mechanisms of labor and nature exploitation required to maximize exchange values. It was not by chance that biotechnology was adopted commercially in the 1980s in tandem with the expansion of neoliberal reforms. The expansion of agro-neoliberalism, after the transition period in the late 1980s and early 1990s, was founded on calls for market competition and promises that economic efficiency and higher productivity could reduce the costs of agri-food goods. Agriculture commodities (sugar, coffee, soybean, etc.) are increasingly treated similar to any other investment, e.g., gold or petroleum. The neoliberalization of agri-food has become the embodiment of processes of commodity export, land concentration and social marginalization [34]. Due to growing proletarianization, novel technologies and better productivity, neoliberalism coincided with cheapest food in world history, considered in terms of calories produced per labor hour in the commodity system [12]. Ultimately, neoliberal policies have produced uneven results for the

agricultural sectors of poor countries, exacerbating social differences and marginalizing numerous social groups.

- (3) **Containment of critical reactions:** Agro-neoliberalizing strategies have been employed to appease socio-political opposition through a discourse of supposed gains in terms of environmental governance and food security. Various forms of power work together, from discursive and instrumental rationality to manifestations of political control determining what is produced and consumed. The widespread repercussions of agro-neoliberalism have also contributed to reinforcing the “sanctity” of private property and the creation of entirely new markets, including the commodification of water, ecosystems and biodiversity. In this process, traditional farming is systematically displaced and the ability of producers to counter the effects of capitalist agriculture is significantly undermined [35]. Even with impressive levels of production and trade, advocates of agro-neoliberalism have not been able to eliminate questions about the displacement of family farming, the grabbing of land and resources, legitimacy gaps and growing risks and. There are increasing questions about the legitimacy, material coherence and instabilities of neoliberal agri-food systems [28]. As a result, social movements and opposition groups have established protest networks that draw attention to renewed mechanisms of exploitation and exclusion (e.g., La Vía Campesina). The appeal of agro-neoliberalism has complicated grassroots reactions, and consequently opposition to agro-neoliberalism often replicates the very things it purports to resist, as in relation to nature commodification and private property rights [36]. As a result, the influence of agro-neoliberalism has influenced the search for technological and socio-economic improvements, as in the case of agro-ecological farming and organic production that are increasingly contained within the realm of corporate-friendly strategies.

The above three dimensions of agro-neoliberalism represent the specific conceptual framework used in this section to illuminate the ongoing Brazilian agribusiness activity. Because of new production areas in the Amazon region and growing productivity in supply chains, Brazil has consolidated its position as a leader and a “model” of commercial crop production. Different than other sectors (such as industrial production and the retail market), neoliberalized agribusiness is understood as an island of prosperity, and is currently claimed to be one of the most dynamic and efficient areas of the national economy. Due to advertisement campaigns, “agribusiness” has a particularly positive meaning in Brazil, where it is widely used in reference to large plantation farms and, to a lesser extent, to food processing and trading companies (the latter is the characterization typically used in North America). In general terms, Brazilian agribusiness includes four sectors: raw materials, agriculture, industry and distribution [37]. At this point, a quick note on terminology is in order: the expression “agribusiness”, although quite vague, has helpful explanatory value here as it encapsulates the multiple activities of present-day commercial agriculture. It elusively reveals the “agro” being transformed according to the capitalist rationality of commodification, privatization and intense exploitation employed to secure profitability. The imprecision of the term “agribusiness” is nothing new, given that (capitalist) agriculture also has no rigid boundaries. It is not by chance that “lobbyists and politicians generally get around the complexity of the farm industry by neglecting to define agriculture. Often, the goals of agricultural policy are simply stated in terms of unstable and low farm incomes. (...) agricultural policy design is ill-conceived because the farm problem itself is not well defined” [38] (pp. 30–32).

In practical terms, the transition from conventional to neoliberalized agribusiness—in Brazil and elsewhere—has been accomplished only partially given that, although the neoliberalization of food and agriculture has been a calculated attempt to resolve the crises of Fordist agri-food, it failed to prevent the reemergence of instability, protest, socio-ecological degradation and, ultimately, legitimacy deficits [28]. The contradictions of neoliberalized agribusiness are repeatedly played down by those who praise its material and socio-political achievements, although there is mounting criticism from those who oppose agribusiness-led forms of development. The impacts cited by the latter group include the disruption of traditional food, utilization of mechanized deforestation, and concentration of landed property. In particular, the removal of subsidies and the closure of state enterprises resulted in higher levels of

vulnerability affecting low-income populations, which ultimately encourages migration as a negotiated response to new public policies and practices. The shortcomings of agro-neoliberalism are evident when positioned in relation to the world-ecology of the global capitalist economy [12]. In the case of Brazil, the neoliberalization of agribusiness has proved central to the country's insertion into globalized markets, but it has also revealed the amalgamation of tradition and modernity evolving through both new socio-spatial orders and the maintenance of old political structures [39]. Repeated assertions of the success of agribusiness in Brazil have paved the way for reinforcement of the hegemony of agro-neoliberalism as an idiosyncratic phenomenon progressing through distinctive associations between the state apparatus and the private sector. It is to this contentious national experience that we now turn.

4. Mato Grosso: Hotspot of Brazilian Agro-Neoliberalism

The preceding discussion on the controversial trends of agribusiness and the conceptualization of agro-neoliberalism's main dimensions will now help us to examine the main trends and controversies regarding the evolution of the agricultural frontier in the southern section of the Brazilian Amazon under the pressures of modernization, national integration and, more recently, agribusiness expansion in the State of Mato Grosso. The most pronounced land conflicts in Mato Grosso have to do with disputes between agribusiness farmers without titles (due to irregular purchases or land grabbing, called *grilagem* in Brazil), subsistence farmers with customary ownership of land (*posseiros*) or official land titles in agrarian reform projects (*assentados*), indigenous groups and various forms of protected areas. The main drivers of conflict are the pressure to increase and expand crop and cattle production against the demands of subsistence farmers, Indians and environmentalists. Our analysis is informed by empirical work conducted between 2013 and 2016 that involved various data collection campaigns and regular visits to different locations in the north of Mato Grosso in the Upper Teles Pires river basin, which is the main soybean production area in Brazil today. The research strategy consisted of an "embedded case study", which started by considering sub-units of social action that were then scaled up to identify common patterns in larger geographical spheres. With the help of local academics and practitioners, informants were identified, initial contacts were set up, and the research then followed a snowball approach. Preliminary information was organized to guide further interviews, documentation analysis and the collection of additional data. With the examination of economic sectors, social groups and representative organizations, it was possible to compare intra- and inter-group differences and the range of alliances or disputes (ranging from those strongly against to others fiercely in favor of the prevailing agribusiness system). Interviews were complemented with analysis of documents, statistics, websites, leaflets, presentations and newspaper articles found in university libraries and in the archives of public agencies and private entities. Following the approach taken by Foweraker, interviews, contacts, qualitative data and observations were "absorbed" in the text and incorporated into the wider analysis without resorting to direct quotations [40].

The appropriation and transformation of Mato Grosso into a perennial economic frontier—a process that is still unfolding and even accelerating today—reveals a great deal about the unfairness of Brazilian capitalist modernity (note that it is beyond the scope of this analysis to consider the perspective and demands of particular groups of farmers and consumers, but the intention is to assess the main directions of change and the mounting contradictions of agro-neoliberalism). The State of Mato Grosso currently accounts for around 9% of global soybean production, which, in the 2017–2018 season, occupied 9.5 million hectares and produced 31.8 million tons (data obtained from the Mato Grosso Agricultural Economy Institute (IMEA), available at <http://www.imea.com.br/imea-site/indicador-soja>). Since 1938, when the national government launched the March towards the West, Mato Grosso was transformed into a new economic frontier. The March towards the West encompassed exploratory surveys, road construction, allocation of land in agricultural colonization projects and economic incentives. However, instead of the expected migration of subsistence and, in later stages, commercial farmers to the area, what happened in Mato Grosso in the middle of the last century was basically

a process of land privatization. The most tangible result was the allocation of land to numerous absentee landowners and the spiraling of land speculation, not production [41]. As in other countries, speculators were not interested in working the land, but requested, almost with no cost, the granting of land titles intending to sell after land values had risen. In 1964, a military coup instituted a long dictatorship (21 years) that worked in favor of a hyper-conservative modernization along the lines of state gigantism and authoritarian developmentalism. Velho argued that the promotion of the agricultural frontier in the 1970s reinstated the same ideological orientation adopted in the 1930s by the March towards the West [42].

Mato Grosso was a main arena for private colonization projects carried out with direct and strong support by the federal government (different from in neighboring states, where the priority was to implement public agrarian reform projects). It was a process loaded with ideological and political claims, according to the long-established logic of producing abundances to cover scarcities. The expansion of agribusiness in Mato Grosso had initially limited economic results (i.e., due to extremely long distances to reach consumers; the virtual absence of roads, infrastructure and technology; superficial planning; and unfamiliarity with the local agro-ecological circumstances), but was justified by the sheer abundance of land, the great quantity of ruined farmers in the South willing to move and, more importantly, generous government subsidies and rural credit. In total, the colonization of Mato Grosso's agricultural frontier involved more than 100 resettlement projects and incorporated more around four million hectares between 1970 and 1990 [43]. Mato Grosso's colonization experience greatly deviated from the classical frontier-making model described in the literature, which supposes an initial arrival of pioneers, typically subsistence farmers and adventurers with little to lose, who are then gradually replaced by more commercial farmers and private companies, leading to various degrees of tensions between the various groups. There was no spontaneous transition from "farming" to an "agricultural sector", but what happened in Mato Grosso was actually the writing off of the socio-ecological circumstances of existing groups and the imposition, through market relations and firm state action, of exogenous practices and goals that replicate values and priorities decided elsewhere.

The aggressive mobilization of land and resources to create a large-scale agricultural region was triggered by the political and ideological vision of the federal state (especially after the 1964 military coup) on behalf of a conservative vision of modernity. The government championed national development and integration plans (financed largely from multilateral loans) that triggered the migration of impoverished farmers and fostered new rounds of primitive accumulation by private companies entitled to receive generous subsidies once these started operating in the Amazon. Instead of bringing development to areas considered destitute, frontier-making in Mato Grosso was both speculative and aimed to mitigate the lack of land elsewhere in the country [44]. As result, there were serious doubts about the resilience of the agricultural frontier in the Amazon without state assistance. Considering the gradual exhaustion of the frontier-making model introduced in the 1970s, highly dependent on state funds and direct state intervention in agricultural production, some saw the overall decline of the frontier and even the retreat of capitalism in the Amazon. The agribusiness expansion introduced by the Brazilian military was costly, scandalously inefficient and quickly became obsolete with the end of the dictatorial regime in 1985 and severe fiscal crisis of the state. However, after a turbulent decade and to the surprise of many, the agricultural frontier re-emerged and flourished from the late 1990s under a favorable convergence of agrarian reorganization (i.e., land concentration), global market opportunities (the commodity boom in the 2000s) and the liberalization of macroeconomic policies (centered on monetary stability, global trade, financial speculation and deindustrialization).

With the end of the dictatorship, the country embarked upon a slow and superficial transition to formal democracy and the agriculture practiced in Mato Grosso had to fulfil other demands, particularly the structural need for dollars derived from macroeconomic policies aimed to stabilize the currency (reliant on the massive import of goods and services). The most relevant outcome is that, despite its central role in maintaining the trade surplus (basically from the export of soybean

and processed meat), Mato Grosso never stopped being a frontier. There is a new paradox, added to many previous ones: Mato Grosso reached the macro-economic center, but in practice remains a frontier where abundances and scarcities rapidly follow each other. Mato Grosso is now considered as highly successful agribusiness experience, but this is a totalizing narrative that disregards the mounting contradictions. In the past, the Amazonian frontier had abundant land and labor, but with the neoliberalization of agribusiness the frontier was significantly transformed with the abundance of technology and external capital (both employed to maximize surplus-value extraction) while land and natural resources have become increasingly scarce [45]. The conditions of frontier-making reproduced the monopoly of land-holding—a decreasing number of increasingly wealthier landowners—that so distinctly characterized rural development in the rest of the country. The agricultural frontier has been recently reinvented as “corporate Amazonia”, gradually under the influence of land investors, private banks and transnational corporations (not only the big names, Cargill, Bunge, Archer Daniels Midland and Dreyfus, but the new Brazilian transnational corporations, such as Amaggi, BRF, Marfrig and JBS).

The symbolism and the materiality of the agribusiness frontier continued to be felt and manifested in the form of selective abundances and shared scarcities. Increased land prices limited the possibility of smaller farmer to buy land and created incentives for migration and frontier settlements, generating further forest conversion and environmental degradation [46]. Production, more and more concentrated in the hands of very large-scale farmers, is also facilitated by biological homogenization (due to the almost exclusive use of GMO soybeans) and the same technological package (large machinery, digital technology and sophisticated agro-chemicals). There is further ideological homogenization in the region due to the control of political protest in years of low price or production adversities, given that the farmers are easily mobilized by their representative agencies (e.g., FAMATO and Aprosoja), highly authoritarian organizations with a façade of participation and strongly controlled by the same politicians that command the government apparatus of the State of Mato Grosso; in that fashion, when things do not go well, the reaction is typically to blame an abstract “government”. One of the notable examples of the new routes of political influence is the appropriation of environmental regulation by the agribusiness sector, obviously along the lines of ecological modernization. In that way, the agricultural frontier encroaches not only upon the ecosystems, but it gradually appropriates the practice and the rationale of environmental law, obviously focusing on market-based solutions (e.g., carbon trade, compensatory measures for past degradation in a location different than the one impacted, deforestation amnesty, etc.).

The geographical trajectory of Mato Grosso has been largely based on the production and constant reinforcement of agro-neoliberalism, particularly in the more recent phase of modernization and intensification. Referring back to the conceptual framework, there have been renewed and strategic forms of public–private collaboration and the adoption of sophisticated machinery, agro-chemicals and other technological improvements, together with a well-orchestrated reinforcement of the supposed advantages of neoliberalized agribusiness and the coordinated containment of critical reactions. Furthermore, the process of frontier-making has never disappeared, even now when the state occupies a much more prominent position in national politico-economic issues. The key evidence of the persistent frontier is the continuous movement of people and the tacit permission to transgress and reshape the existing socio-spatial order, regardless of the inequalities and impacts. Mato Grosso remains an agricultural frontier because of its particular socio-spatial formation marked by unique mechanisms of production, exploitation and accumulation. It is still a zone of experimentation, rapacity and reconstitution, where land tenure and state rule are relative and identities and allegiances are rapidly shifting. The frontier was historically promoted by state power but the state never had much interest in introducing a more detailed administrative organization or insisting on the rule of law. Formal laws and ordinary institutions have been diluted at the frontier and largely replaced by other codes marked by pragmatism and etched by the balance of power. In that way, Mato Grosso’s agribusiness frontier-making continues to be an integral process that simultaneously connects and transforms core and periphery circuits of neoliberal agrarian capitalism.

5. Beyond Neoliberalized Agribusiness and Narrow Sustainability: For a Political Ecology of Agri-Food

The central concern of this article so far has been the expansion of capitalist agriculture—defined above as agriculture-cum-agribusiness—and the creation of global networks of food production and distribution. The powerful commodification of food and its insertion into money-making ventures have been cleverly justified by governments and strong private players through the neo-Malthusian rationalization of hunger threats and the consequent imperatives of production and productivity (that is, priority concerns about population growth, resource scarcity and catastrophic famine than issues of poverty and inequality). The paradox is that the more agribusiness is naturalized and accepted as given, the more political it becomes, but the less visible is its political substance. Capitalist agriculture depends on the persistent reinforcement of this paradox to maintain reliable streams of profit and private gains, even if this comes at the price of alienated, but still deeply ecological, relations. The experience in Mato Grosso demonstrates the questionable socio-economic contribution of large-scale soybean cultivation and the range of socio-ecological impacts associated with production intensification [47,48]. Comparable problems have been denounced in relation to the “soybeanization” of Argentinean agribusiness, particularly because of widespread use of genetically modified seeds, which has led to dramatically reduced levels of agricultural sustainability [49]. Because of this central distortion, contemporary agribusiness has been tacitly “allowed” to destroy the commons (including the material and cultural components of ecosystems) and to dramatically transform locations and regions according to the anti-political pressures of homogenization, exploitation and commodification. The displacement of rural communities, the use of genetically modified organisms and the related exploitation of labor are all examples of how capitalist agriculture works through the colonization of social life, biology and production efforts. At the same time, however, critical reactions and the formulation of alternatives have failed to properly relate local challenges and shared responses to wider dilemmas and associated opportunities of late modernity. The main consequence is that the agri-food debate remains entirely open, with clear demands for innovative translations of uneasiness and criticism into concrete measures, while avoiding artificial simplifications of highly complex processes of diversification, resistance and legitimation.

To address the complexity of contemporary trends, capitalist agriculture (agribusiness) must be considered as an intrinsically political (contested) and ecological (vital) activity, occurring at the trialectical interface of state, society and the rest of socionature [50]. Both examinations and the denunciations of agribusiness have to grasp its politico-ecological ontology. Agriculture- and food-related activities are intrinsically ecological, first and foremost because they are practiced by and for people who are unavoidably part of socionature. Human beings are an integral part of a socionatural world, that is, a universe that is simultaneously social and more-than-social (or, to use more loosely defined terms, a world that is both “social” and “natural”). Therefore, capitalist agriculture is a locus of exploitation, property disputes and accumulation resulting from a reconfiguration of socionatural features according to the rationality of capital. The consequence of this fundamental ontological observation is that the separation of nature from society is not only unhelpful, but also creates major obstacles to fully understanding multiple agri-food crises. The acceptability and success of modern agriculture-cum-agribusiness depends on the orchestrated denial of the fundamentally political (because anti-ecological) basis of agri-food today. However, the majority of critical authors also reproduce a modernist, dichotomic ontology in which nature is theorized in externalized and mechanistic terms and abstracted from the socio-political domain. Goodman specifically warns that the theoretical and political relevance of most agri-food studies is significantly weakened by the perverse influence of modernist biases, in particular the dualist separation of nature and society [51]. For Goodman and other authors, agri-food processes are metabolized corporally and symbolically as food, that is, food is not something pre-given but the relational result of multiple, politicized socionatural interactions. Rather than being purely organic entities, agri-food systems are hybrid networks where both the natural and the social are perpetually co-produced and co-determined.

Beyond the rigid disciplinary interpretations of economists, sociologists and other similar scholars, the political ecology of agri-food systems is a growing field of investigation, as it integrates different approaches to the study of economic development and environmental change, combining historico-geographical accounts with political and socio-cultural factors. While agriculture is essentially ecological—at the intersection between the human and more-than human dimensions of the totality of the world—the incorporation of agriculture into capitalist relations of production and reproduction triggers an increasing, and irreversible, politicization of food. As observed by Hannah Arendt, “tilling the soil not only procures means of subsistence but in this process prepares the earth for the building of the world” [52] (p. 138). Commercial agriculture, i.e., agriculture-cum-agribusiness, relies on the private appropriation of agriculture’s ecological attributes for the circulation and accumulation of capital. If the crisis of the global food system has led to calls for technological fixes and yield boosting under a “new Green Revolution”, political ecologists have emphasized the growing role of global agribusiness and transnational corporations, as well as the negative impacts of new technologies and market pressures [53]. Place-based interactions and local contexts have been increasingly recognized by political ecologists; it matters where food is produced and consumed, and how it gets from farm to plate. In addition, the success or failure of modernizing technologies, such as GMO soybean, are not only dependent on the organization and functioning of capitalist agricultural systems, but also greatly influenced by the materiality of the crops themselves. However, what is still missing in the academic literature is the application of politico-ecological knowledge to interpret cross-scale connections and the plurality of sectoral and group agendas that underpin agribusiness activity. By approaching capitalist agriculture as a contested socio-ecology, and analyzing agricultural frontiers as lived spaces of politico-ecological, institutional and personal experimentation, this research provides a radically new perspective on the achievements, risks and prospects of hegemonic agri-food systems and development strategies.

What is required, as a pioneering research approach, is to unite separate bodies of knowledge and investigation through two associated “short-circuits”. The first “short-circuit” involves incorporating subjectivities and interpersonal relations into politico-ecological considerations of conflicts, risks and contradictions (more-than-materialist political ecologies), while simultaneously taking into account how materiality affects subjectivities (more-than-human agencies). Rather than merely ascribing particular behaviors and monodimensional agency to individuals and groups, political ecology should go beyond such intransigent epistemologies to connect these with broader social and economic contexts, abandoning the ontological differentiation of subjects and objects, individuals and contexts and instead focusing on how action and agency are generated in unpredictable encounters. This is the application of critical political ecology thinking to agri-food studies, which will be invaluable in terms of understanding how subjects and contexts are ultimately made in experience, as well as for appreciating the material and discursive basis of lived problems and impacts that result from unfair and discriminatory relations of production and reproduction. This same “short-circuit” will help to connect every day, localized food with developmental, globalized trends. Instead of creating a false dichotomy between structure and agency, this methodological approach considers the centrality of social actors, as individuals full of creativity, initiative and contradictions, but also people who are constrained by their social and historico-geographic conditions. Rural development research should take into account the social construction of the world, prioritize individual and collective agency, and consider the social properties that emerge from (politicized) interactions. In addition, this must be a humanist exercise, but equally a class-based approach that is also mindful of issues beyond class, such as gender, culture, intergenerationality, religion and even affection.

The second, incremental, “short-circuit” is to conflate the materiality and subjectivity of contested political ecologies with the profoundly dynamic, and also socio-ecological, ontology of the state apparatus. The state is not simply a detached administrator of environmental pressures; its involvement in socionatural issues has direct effects on its organization, functioning and legitimization. The state apparatus is actually an institutional and political permanence which involves unique public–private

entanglements. For instance, the expansion of new Brazilian frontiers coincided with the strengthening of environmental regulation and regulatory agencies; this apparent paradox can be explained by the failure of the regulatory apparatus to curb the expansion of production areas and the willingness of the regulators to accommodate farming demands through a selective choice of environmental problems. Nonetheless, scholarly work has often fallen short of establishing the politicized connections between socio-ecological pressures, spatial dynamics and the changing patterns of the state apparatus. This “second short-circuit” is still necessary to examine the failures of emerging governance systems introduced in the course of wider state reforms. The governance of agriculture and environmental change has been particularly influenced by political theories about flexibility and legitimacy, which have facilitated the advance of capitalism over the more-than-human spheres of socionature, mediated and promoted by the contemporary state.

Departing from this conceptualization, a political ecology of agri-food has a lot to contribute to critical agri-food investigation. It is an established field of multidisciplinary research, concerned with power and politics in socio-environmental issues, control and access to resources and territories, questions of identity and justice, and issues of accumulation through the enclosure of resources and dispossession of people. Most work done in this area has so far focused on land grabbing and access to resources, disputes related to commodity circulation, environmental degradation, transnational politics of agri-food chains and the range of responses and global networks. Therefore, a strong focus on the political ecology of agri-food systems can further inform an examination into the human aspects of the nature–development–state nexus, particularly the asymmetric distribution of winners and losers, the ways in which unequal access to resources is structured and negotiated in capitalist relations, by major institutions and policies, and by social relations and situated understandings of nature. This is an exciting and evolving line of research that can, and should, be invigorated by different traditions of critical thinking, in particular the mobilization of political ecology ideas applied to agri-food. The debate can directly benefit from the examination of issues such as technological changes, ecosystem degradation and persistent malnutrition, drawing attention to power relations such as class and gender which produce uneven access to land and promote specific agricultural practices.

The interpretation of agri-food questions, as some of the most crucial and controversial questions of contemporary globalized society, can be inspired by a commitment to a politico-ecological perspective, which can be schematically described as follows:

- (1) Agri-food systems are predicated upon socio-ecological foundations, class-based antagonisms and the politico-economic goals of the social groups involved (which are embedded and contribute to shape specific spatial configurations from the local to the national and international scales of interaction).
- (2) Modern, capitalist agriculture (i.e., agriculture-cum-agribusiness) fundamentally relies on the creation of artificial boundaries and cleavages between society and the rest of nature, manifested, for instance, in the encroachment on commons, territories and cultures for the purposes of circulation and private accumulation of capital.
- (3) The economic and technical success of modern agriculture simultaneously depends on the strict manipulation of its ecological basis and on the maintenance of anti-political narratives (which naturalize and justify agriculture-cum-agribusiness).
- (4) The more agriculture modernizes, globalizes and becomes massively commodified, following the imperative of agribusiness, the more abstract and alienated it becomes (i.e., disconnected from concrete geographical settings).
- (5) These contradictions are encapsulated, negotiated and (partly) accommodated in the apparatus of the state; the state apparatus is itself also a politico-ecological entity fraught with social and ecological disputes and susceptible to power pressures.
- (6) Reactions to the politico-ecological tensions associated with the expansion of agri-business and with the biased interventions of the state depend on socionatural mobilization and overcoming

alienation; politico-ecological agency is not only a human process, but the rest of socionature also shares with humans the ability to actively respond to degradation and exploitation.

- (7) Since the 1980s, the advance of agro-neoliberalism and its hegemonic influence around the planet has maintained and exacerbated the contradictions and limitations of agriculture-cum-agribusiness; technological advances encapsulate the achievements and frustrations of the modern world (not the other way around, that is, with modernity leading to technological improvements as undisputed gains).
- (8) The tensions and contradictions of agro-neoliberalism are more conspicuous at the frontiers of agribusiness expansion, because of the constraints of the state apparatus, the ease with which norms can be transgressed, and the disorganized nature of political resistance.

Informed by these eight points, space-sensitive assessments of social relations and socio-economic trends across different scales have a lot to offer in terms of understanding the complexity of contemporary, neoliberalized agribusiness. As in other parts of the globe, Brazilian agribusiness has sparked disputes about actual beneficiaries, uncertain prospects and negative impacts, which continues to challenge established explanatory approaches and reinforces the role of critical scientific thinking on sustainability and agribusiness. The achievements of neoliberalized agribusiness in areas such as Mato Grosso are uneven, unstable and transient, and they are offset by a legacy of socio-ecological degradation and a highly hierarchical social order fraught with injustices perpetrated against the region's original inhabitants as well as poor migrants who have moved to the southern Amazon since the 1970s [54]. Nonetheless, and thanks to the international demand for Brazilian agro-industrial goods, the agribusiness sector has shrewdly managed to reaffirm its image of modernity and efficiency, notwithstanding evidence of widespread negative socio-ecological impacts and limits to the maintenance of current rates of growth. Even though most of the chemical, digital and mechanical technology used by agribusiness farmers is imported, and foreign companies control large shares of inputs and trade, the sector rejects any criticism and consistently claims great achievements on behalf of Brazilian society. The leaders of agribusiness in Brazil, together with sympathetic academics, civil servants and the mainstream media, have managed to convince most of the general public that neoliberalized agribusiness is now the main locomotive of the economy and, regionally, the redeemer of the agricultural frontier opened in the Amazon and the Centre-West in the 1970s.

It is emblematic of the highly protective barriers placed around agribusiness that the sector successfully rebuffed, in a highly coordinated fashion, even oblique references to the degradation of indigenous lands in a song written by the Imperatriz Leopoldinense samba school for the 2017 carnival. It is astonishing that, although the lyrics of the song make no direct reference to agribusiness or farmers, just mentioning the forests of Xingu, one of the main indigenous reserves in the country, was enough to provoke a stream of fierce protest and condemnation. What has happened in Brazil over the last three decades certainly helps to demonstrate that agro-neoliberalism is not merely an economic phenomenon or even the superimposition of economic agendas onto other sectors of social and political life. The main dimension of agro-neoliberalism is certainly economic, given that it is fundamentally an attempt to revitalize the economy and create new opportunities for socio-ecological exploitation and capital accumulation; moreover, agro-neoliberalized production has major interdependencies and synergies with the reform of the state apparatus, with social interactions and disputes across different scales, and with the affirmation of certain technological, ethical and political practices. Agro-neoliberalism is a multidimensional process that has reiterated and expanded the economic, social and cultural basis of capitalist agriculture (agriculture-cum-agribusiness) according to a market-centered rationality. Overall, the controversial and sensitive basis of contemporary agribusiness continues to deserve appropriate conceptualization and critical methodological studies.

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